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R.T.

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/557,775	04/25/00	ASHIDA	T PM 268172

000909  
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IM52/1004

EXAMINER

NGUYEN, K

ART UNIT PAPER NUMBER

1774

DATE MAILED: 10/04/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

**Office Action Summary**

Application No.

09/557,775

Applicant(s)

ASHIDA ET AL.

Examiner

Kimberly T Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

The disclosure is objected to because of the following informalities: On page 12, line 25, the "at least one selected" material should be identified. ✓

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2, 5, and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 2 and 5, the phrase "water-soluble compound containing an element of Group 4 of the Periodic Table" is not clear. Examiner suggests that Applicants list the elements which Applicants intend to claim instead. ✓

Claim 4 recites the limitation "the water-soluble aluminum compound" in line 21. There is insufficient antecedent basis for this limitation in the claim. ✓

Claim 5 recites the limitation "the element of Group 4 of the Periodic Table" in line 25. There is insufficient antecedent basis for this limitation in the claim. ✓

In claim 12, it is not clear what is meant by the phrase "the ink-receptive layer contains at least one selected from" in line 19. It appears that there is a term missing between the terms "one" and "selected." ✓

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ali et al., U.S. Pat. No. 5,589,269 in view of Santo et al., U.S. Pat. No. 5,965,252.

Ali shows an ink receptive sheet comprising a substrate and at least one ink-receptive layer which comprises silica (column 19, lines 58-63), aluminum chloride (polyaluminum hydroxychloride) (column 13, lines 13-19), a zirconium compound such as zirconium acetate (column 13, lines 13-34), and a hydrophilic binder such as polyvinyl alcohol (column 19, lines 39-41 and column 20, lines 44-47). Ali also shows that the substrate is a cellulose ester or polyolefin (claim 7) and may have a film backing of polyolefin (water resistant support) (column 20, lines 66-67 to column 21, lines 1-7).

Though Ali shows that the ink receptive layer includes an amount of silica particulates such that the final coating is transparent with a haze level of 15% or less (column 19, lines 58-67), Ali does not show that the ink receptive layer contains  $8 \text{ g/m}^2$  or more of the silica particulates as in instant claim 6. However, where the general conditions of a claim are disclosed by the prior art (i.e. amount of silica particulates), it is not inventive to discover the optimum or workable ranges by routine experimentation.

Ali shows that the silica particulates in the ink receptive layer have a mean particle diameter of about 5 to 40 micrometers; however, Ali does not show that the average particle diameter of the silica is 20 nm or less as in instant claim 7. Ali does not show that the

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hydrophilic binder of polyvinyl alcohol is in an amount of 10 to 30% by weight based on the amount of synthetic silica as in instant claim 8. These values are also obtainable by optimization of routine experimentation. Thus, where the general conditions of a claim are disclosed by the prior art (i.e. mean particulate diameter of silica particulates and percentage weight of hydrophilic binder), it is not inventive to discover the optimum or workable ranges by routine experimentation.

Although Ali does not show that the pH of the surface of the ink receptive layer is 3 to 5 as in instant claim 9, the surface of the ink jet recording sheet of Ali would have a pH of 3 to 5 because Ali shows similar materials as in Applicants' invention. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the pH level of the ink receptive layer

Claims 1 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ali et al., U.S. Pat. No. 5,589,269 in view of Santo et al., U.S. Pat. No. 5,965,252.

Ali is relied upon as above for claim 1.

Ali does not show that the ink receptive layer contains a plasticizer of polyvinyl alcohol, urea, or glycerin as in instant claims 10 and 11. Ali does not show one of the compounds selected from the group consisting of a nitrite, sulfite, bisulfite, phosphite, thiosulfate, and the compound represented by formula I as in instant claim 12.

Santo shows a ink jet printing medium comprising a substrate and an ink-receiving layer comprising urea resins (column 9, lines 1-6), polyvinyl chloride (column 9, lines 8-16), and phosphite compounds such as tetraoctylbis(ditridecyl phosphite) titanate and tetraisopropylbis(dioctyl phosphite) titanate (column 5, lines 22-34). It would have been obvious

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to one of ordinary skill in the art at the time the invention was made to use the urea as a plasticizer and a phosphite compound in an ink receiving layer of an ink jet recording sheet since it is known in the art that these components are used as a plasticizer and titanate coupling agent.

Examiner requests the product bulletin of the compound represented by the formula I as shown in claim 12. Examiner considers this information to be material to the prosecution of the application.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Kimberly Nguyen whose telephone number is (703) 308-8176. The examiner can normally be reached on Monday through Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly, can be reached at (703) 308-0449. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-5408 for regular communications and (703) 305-3559 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Kimberly T. Nguyen  
Examiner  
Art Unit 1774

CYNTHIA H. KELLY  
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